

CLAIMS

1. A transmission data structure of data for text transmission for transferring data for text reproduction relating to reproduction of text data and successively reproducing the data for text reproduction with a data receiving apparatus, comprising:

full text header data relating to reproduction of the text data as a whole;

- fragment text data containing fragmented portions of the text data; and

fragment text header data placed for each instance of the fragment text data and relating to individual reproduction of the fragment text data.

2. The transmission data structure of data for text transmission according to claim 1,

wherein the fragment text header data contains reproduction time period information relating to a reproduction time period of the fragment text data.

3. The transmission data structure of data for text transmission according to claim 1 or 2,

wherein the fragment text header data contains data length information relating to a data length of the fragment text data.

4. The transmission data structure of data for text transmission according to any of claims 1 to 3,

wherein the full text header data contains text reproduction information containing information relating to a reproduction area of the

text data, and format information containing information relating to a format of the fragment text data.

5 5. The transmission data structure of data for text transmission according to claim 4,

 wherein the full text header data further contains data length configuration information for configuring a data length of the fragment text header data.

10 6. The transmission data structure of data for text transmission according to claim 4 or 5,

 wherein the fragment text header data contains an index indicating a relation between the fragment text data and the format information.

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7. The transmission data structure of data for text transmission according to any of claims 4 to 6,

 wherein the data for text transmission comprises a plurality of packets, and

20 wherein the text reproduction information is packetized in a different type from the fragment text data and the fragment text header data.

8. The transmission data structure of data for text transmission according to claim 7,

 wherein the format information is packetized in the same type as the text reproduction information.

9. The transmission data structure of data for text transmission

according to claim 7,

wherein the format information is packetized in the same type as the fragment text data and the fragment text header data.

5 10. The transmission data structure of data for text transmission according to claim 9,

wherein the format information includes a plurality of format information units, and

10 wherein the format information unit is placed for each instance of the fragment text data.

11. The transmission data structure of data for text transmission according to any of claims 1 to 10,

15 wherein the data for text transmission is data that is transmitted as multiplexed data.

12. A data receiving method for data for text transmission, comprising:

20 a receiving process of receiving data for text transmission having the transmission data structure according to any of claims 1 to 11; and

a reproducing process of successively reproducing fragmented portions of the text data contained in the fragment text data, based on the full text header data, the fragment text data and the fragment text header data that are contained in the data for text transmission.

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13. A data receiving apparatus for data for text transmission, comprising:

a receiving unit operable to receive data for text transmission having the transmission data structure according to any of claims 1 to

11; and

a reproducing unit operable to successively reproduce fragmented portions of the text data contained in the fragment text data, based on the full text header data, the fragment text data and the fragment text header data that are contained in the data for text transmission.

14. A data receiving program for performing, with a computer, a data receiving method for data for text transmission having the transmission data structure according to any of claims 1 to 11,

10 wherein the data receiving program lets the computer perform the data receiving method comprising:

a receiving process of receiving data for text transmission having the transmission data structure according to any of claims 1 to 11; and

a reproducing process of successively reproducing fragmented portions of the text data contained in the fragment text data, based on the full text header data, the fragment text data and the fragment text header data that are contained in the data for text transmission.

15. A transmission data structure of data for text transmission for transferring and successively reproducing data for text reproduction relating to reproduction of text data,

20 wherein the data for text reproduction contains a plurality of instances of fragment text data obtained by fragmenting the text data, and text header data containing information for reproducing the fragment text data,

25 wherein the data for text transmission comprises a plurality of packets,

wherein the fragment text data are placed in each of the packets in an order in which they are displayed,

wherein the packet contains reproduction time information of each instance of the fragment text data, and

wherein a second packet contains fragment text data whose reproduction time information overlaps that of fragment text data of a first packet preceding the second packet.

16. The transmission data structure of data for text transmission according to claim 15,

wherein the number of the fragment text data contained in the packet is determined as such a number that the packet is transmitted in a bandwidth substantially corresponding to a transmission channel bandwidth secured for transmission of the data for text transmission.

17. The transmission data structure of data for text transmission according to claim 15 or 16,

wherein the data for text transmission is data that is transmitted as multiplexed data

18. A data receiving method for data for text transmission having the transmission data structure according to any of claims 15 to 17, comprising:

a time obtaining process of obtaining a time T_n indicated by reproduction time information of each instance of the fragment text data of the first packet, and a time T_a indicated by reproduction time information of the first fragment text data of the second packet; and

a replacing process of replacing fragment text data whose time T_n is equal to or later than the time T_a in the first packet by fragment text data that has overlapping reproduction time information in the second packet.

19. A data receiving method for data for text transmission having the transmission data structure according to any of claims 15 to 17, comprising:

5 a reception delay determining process of determining whether a receiving time T_d of first fragment text data is later than a time T_n indicated by reproduction time information of the first fragment text data and is earlier than a time T_{n+1} indicated by reproduction time information of subsequent second fragment text data; and

10 a reproducing process of reproducing the first fragment text data from the receiving time T_d to the time T_{n+1} , if the determination is positive.

20. The data receiving method for data for text transmission according to claim 19,

15 wherein, in the reproducing process, reproduction of the first fragment text data is started from a reproduction state of the point when the time T_n to the receiving time T_d has elapsed in the first fragment text data.

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21. A data receiving apparatus for data for text transmission having the transmission data structure according to any of claims 15 to 17, comprising:

25 a time obtaining unit operable to obtain a time T_n indicated by reproduction time information of each instance of the fragment text data of the first packet, and a time T_a indicated by reproduction time information of the first fragment text data of the second packet; and

a replacing unit operable to replace fragment text data whose time T_n is equal to or later than the time T_a in the first packet by

fragment text data that has overlapping reproduction time information in the second packet.

22. A data receiving apparatus for data for text transmission having
5 the transmission data structure according to any of claims 15 to 17,
comprising:

a reception delay determining unit operable to determine
whether a receiving time T_d of first fragment text data is later than a
time T_n indicated by reproduction time information of the first fragment
10 text data and is earlier than a time T_{n+1} indicated by reproduction time
information of subsequent second fragment text data; and

a reproducing unit operable to reproduce the first fragment text
data from the receiving time T_d to the time T_{n+1} , if the determination is
positive.

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23. The data receiving apparatus for data for text transmission
according to claim 22,

wherein, in the reproducing unit, reproduction of the first
fragment text data is started from a reproduction state of the point when
20 the time T_n to the receiving time T_d has elapsed in the first fragment
text data.

24. A data receiving program for performing, with a computer, a data
receiving method for data for text transmission having the transmission
25 data structure according to any of claims 15 to 17,

wherein the data receiving program lets the computer perform
the data receiving method for the data for text transmission comprising:

a time obtaining process of obtaining a time T_n indicated by
reproduction time information of each instance of the fragment text data

of the first packet, and a time T_a indicated by reproduction time information of the first fragment text data of the second packet; and
a replacing process of replacing fragment text data whose time T_n is equal to or later than the time T_a in the first packet by fragment
5 text data that has overlapping reproduction time information in the second packet.

25. A data receiving program for performing, with a computer, a data receiving method for data for text transmission having the transmission
10 data structure according to any of claims 15 to 17,

wherein the data receiving program lets the computer perform the data receiving method for the data for text transmission comprising:
a reception delay determining process of determining whether a receiving time T_d of first fragment text data is later than a time T_n
15 indicated by reproduction time information of the first fragment text data and is earlier than a time T_{n+1} indicated by reproduction time information of subsequent second fragment text data; and

a reproducing process of reproducing the first fragment text data from the receiving time T_d to the time T_{n+1} , if the determination is
20 positive.

26. The data receiving program for data for text transmission according to claim 25,

wherein, in the reproducing process, reproduction of the first
25 fragment text data is started from a reproduction state of the point when the time T_n to the receiving time T_d has elapsed.